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EXAMINER	
LU, CHARLES EDWARD	
ART UNIT	**PAPER NUMBER**
2161	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/623,621	SHIN, HYOSEOP	
	Examiner	Art Unit	
	Charles E. Lu	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 January 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *54-90* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *54-90* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Action is in response to the Request for Continued Examination dated 1/18/2007. Claims 54-90 are pending. Claims 54-90 are rejected.

2. Amendments to the specification are noted. The objection to the specification is withdrawn.

3. Remarks concerning the 35 U.S.C. 101 rejections are noted. However, the 35 U.S.C. 101 rejections are maintained. Furthermore, new claim 90 is rejected under 35 U.S.C. 101.

4. Amendments to claim 58 to address the 35 U.S.C. 112, first paragraph rejection are noted. Remarks concerning the rejection of claim 86 under 35 U.S.C. 112, first paragraph are noted and found persuasive. The 35 U.S.C. 112, first paragraph rejections of claims 58 and 86 are withdrawn. New claim 90 is rejected under 35 U.S.C. 112, first paragraph.

5. Amendments to claims 58 and 86-89 to address the 35 U.S.C. 112, second paragraph rejections are noted. The 35 U.S.C. 112, second paragraph rejections of claims 58 and 86-89 are withdrawn. Remarks concerning the rejection of claim 64 under 35 U.S.C. 112, second paragraph are noted and found persuasive. The 35 U.S.C. 112, second paragraph rejection of claim 64 is withdrawn. Remarks concerning the rejection of claim 85 under 35 U.S.C. 112, second paragraph are noted and found persuasive. The 35 U.S.C. 112, second paragraph rejection of claim 85 is withdrawn.

6. Arguments regarding the 35 U.S.C. 102 rejections have been fully considered but are moot in view of the new grounds of rejection presented below.

Claim Rejections - 35 USC § 112

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claim 90 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

As to claim 90, the specification appears to support that the index structure is contained in a container, the container having a string repository, and a predetermined code value, but the specification does not appear to support the string repository not containing a string corresponding to the predetermined code value (emphasis added).

Art rejection of the above claims is applied as best understood in light of the rejection under 35 U.S.C. 112 discussed above.

Claim Rejections - 35 USC § 101

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claims 54-90 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

As to claim 54, the claim contains an abstract idea (e.g., "locating and extracting"). Therefore, the claim must be drawn to a practical application of the abstract idea, which may be established through either a physical transformation or a useful, concrete, and tangible result. See MPEP 2106.

The claim does not cause a physical transformation. For example, the steps of "locating" and "extracting" are reasonably understood to one of ordinary skill in the art as merely data manipulation without actually producing any physical transformation (para. 132).

The claim does not produce a useful, concrete, and tangible result. Merely "searching or extracting" is believed to be an abstract manipulation, failing to enable the "useful, concrete, and tangible" to be realized. The statement in the claim that recites an intended use or field of use (e.g., "for storage in the computer readable medium...for use in locating and extracting") may raise a question as to the limiting effect of the language in the claim. The claimed invention as a whole must produce a "useful, concrete and tangible result." Emphasis added. *State Street, 149 F.3d at 1373-74, 47 USPQ2d at 1601-02.* See MPEP 2106.

Also, the claim is drawn to nonfunctional descriptive material on a computer readable storage medium, which is non-statutory. Nonfunctional descriptive material in this case is a mere arrangement of data (various "sections" of data or various fields of data). See MPEP 2106.

As to claim 63, the claim is drawn to nonfunctional descriptive material on a computer readable storage medium, which is non-statutory. Also see discussion of claim 1. Nonfunctional descriptive material in this case is a mere arrangement of data (various "sections" of data). See MPEP 2106.

As to the other independent claims, see the discussion of claim 54 above.

Dependent claims are rejected for failure to cure the deficiencies of the independent claims.

Art rejection is applied in anticipation of Applicant amending the claims to overcome the rejection under 35 U.S.C. 101 above.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claims 54-84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Evain (XP002323574) provided by Applicant, in view of Wan (US 2004/0028049).

As to claim 54, Evain teaches the following subject matter:

(i) Index structure for metadata divided into fragments, the index structure contained in a computer readable storage medium (e.g., fig. 2-3, 1.1.1, 2.1.5, 2.2, 2.2.2, 2.2.4, 2.3);

A list of keys corresponding to fields of the metadata (2.2.2, 2.3.1.1, 2.3.2);

Location information for defining a key and locating and extracting a fragment of the metadata (see XPath section 2.3.1:1, 2.3.2, also see above).

Evain does not expressly teach,

(A) "wherein at least part of the location information defining the key is expressed as a predetermined code, the predetermined code being assigned to the at least a part of the location information according to a convention for associating codes with portions of the metadata."

(A1) However, Wan teaches an encoder encoding values of attributes and elements of data types into more efficient representations according to their types (para. 0054). Furthermore, elements can be referenced and located ("location information") using ID's or XPath fragments (para. 0077). In an encoding step, the fragment address is translated into an encoded form (a "predetermined code", para. 0092-0093). Note that the encoding is according to a convention for associating codes with portions of the metadata (e.g., see the XPath fragment that was encoded, see e.g., para. 0092-0093, 0057-0058).

(A2) Furthermore, Wan teaches that typically, a set of elements and attributes are repeatedly used in a document instance. Element names and attribute names can be assigned codes to reduce the number of bytes required to encode them (para. 0049).

(A3) Furthermore, Wan teaches using multiple encoding formats (conventions), for example, using no special or default encoding for 0-9 character strings, a default

encoder for 10-99 character strings, and a special encoder for 100+ character strings (para. 0057). These encoding formats correspond to a user defined type.

(A4) Meanwhile, Evain teaches defining location information for a fragment and a key (see XPath section above and 2.3.2). The location information is expressed as XPath strings. Evain could support encoding location information above because Evain already uses encoding to encode another value (sec. 2.3.2, see the fields called "key encoding indicator" and "key encoding").

(A5) Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Evain with the above from Wan, such that limitation (A) above is implemented for at least part of the location information string(s), and one or more of the location of the fragment and location of the key. Furthermore, depending on the length of the string, a special encoder may be used. Note that for a user defined 0-9 character strings, the encoding will be the original text string (in this case, an XPath address that is encoded in native text format). One motivation would have been to increase processing efficiency, as taught by Wan (para. 0093). Another motivation would have been to save memory, since a reduced number of bytes are required to encode elements and attributes (Wan, para. 0049). Finally, another motivation would have been to achieve compromise between decoding time and the level of compression (Wan, para. 0057).

As to claim 55, Evain as applied above further teaches wherein the location information comprises location information of a fragment including the key, and location information of the key within the fragment (see XPath section above and 2.3.2).

As to claim 56, the combination of Evain/Wan above would teach or suggest wherein one of the location information of the fragment and the location information of the key is expressed as the predetermined code (see above discussion).

As to claim 57, the combination of Evain/Wan above would further teach or suggest the code comprising additional information in a language for addressing parts of a markup language document (e.g., Evain's XPath), wherein the location of the fragments and key encoded as a predetermined code corresponds to a user defined type (e.g., a shorter string of 0-9 characters in Wan). Also see above discussion.

As to claim 58, the combination of Evain/Wan above would further teach or suggest one of the location information of the fragment and the location information of the key expressed as the predetermined code (e.g., using a default/special encoding in Wan, see para. 0057 and above) and one of the location information of the fragment and the location information of the key encoded in a language for addressing parts of a markup language document (e.g., Evain's XPath, see discussion above).

As to claim 59, the combination of Evain/Wan above would further teach or suggest providing values of the keys and identification information concerning the metadata corresponding to the values of the keys for locating and extracting a fragment of the metadata (see e.g. Evain's use of the XPath above, and use of handles within the fragment structure, also see above).

As to claim 60, the combination of Evain/Wan above would further teach or suggest a sub section comprising ranges of values of the key and identification information on ones of the fragments of metadata corresponding to the values of the

key (e.g., Evain 2.3.4), and a section comprising representative key values representing the respective ranges of values of the key (Evain 2.3.3).

As to claim 61, the combination of Evain/Wan above would further teach or suggest wherein the list includes identification information on the section, and identification information on the subsection (Evain, 2.3.2 – 2.3.4).

As to claim 62, the combination of Evain/Wan above would further teach or suggest wherein each of the representative key values is a value among the corresponding range of values of the key (Evain, 2.3.2-2.3.4).

As to claim 63, Evain teaches the following claimed subject matter:

Limitation (i) addressed above;

a key index list section (fig. 2, 2.3.2) comprising a list of keys corresponding to fields of metadata and location information for defining the keys and extracting fragments of the metadata (see above, and sec. 2.2-2.4), a key index section (fig. 2, 2.3.3), and a sub key index section (fig. 2, 2.3.4);

Wherein for a key of the key index list:

The sub key index section comprises ranges of values of the key (2.3.3, 2.3.4) and identification information on ones of the fragments of the metadata corresponding to the values of the key (see table in 2.3.4, e.g., "target_handle", 2.2.2, 2.2.4);

The key index section comprises representative key values representing the respective ranges of values of the key (2.3.3). Also see above discussion of similar claimed subject matter.

Evain does not expressly teach (A) discussed above, repeated here.

However, the complete discussion of paragraphs (A1-A5) is repeated here.

As to claim 64, Evain as applied above further teaches wherein the location information comprises location information of a fragment including the keys, and location information of the keys within the fragment (see XPath section above and 2.3.2).

As to claim 65, Evain as applied above further teaches comprising a corresponding key index section and a corresponding sub key index section for another key of the key index list (2.3.2-2.3.4).

As to claim 66, Evain as applied above further teaches wherein the key index list section further comprises identification information on the key index section and the key index section further comprises identification information on the sub key index section (2.3.2 – 2.3.4).

As to claim 67, Evain teaches the following claimed subject matter:

Limitation (i) above;

A list of keys corresponding to fields of the metadata (2.2.2, 2.3.1.1, 2.3.2); Location information for defining a keys (see XPath section 2.3.1.1, 2.3.2, also see above).

Values of the keys and identification information concerning the metadata corresponding to the values of the keys for locating and extracting a fragment of the metadata (see e.g. Evain's use of the XPath above, and use of handles within the fragment structure, also see above).

Evain does not expressly teach (A) discussed above, repeated here.

However, the complete discussion of paragraphs (A1-A5) is repeated here.

As to claim 68, Evain as applied above further teaches wherein the identification information comprises identification information on the fragments of the metadata corresponding to the values of the keys (e.g., 2.3, XPath, Key Index).

As to claim 69, Evain as applied above further teaches wherein the metadata has the structure of metadata as defined by the TV Anytime Forum (see e.g., Evain, introduction, 2.3.1.1, 2.3.5).

Claim 70 is drawn to substantially the same subject matter as claim 54, addressed above.

As to claim 71, Evain teaches the following claimed subject matter:

Limitation (i) addressed above, including "the index provided to search the metadata" (see throughout Evain);

Providing a key index list section (fig. 2, 2.3.2) comprising a list of keys corresponding to fields of metadata and location information for defining the keys and locating and extracting a fragment of the metadata (see above, and sec. 2.2-2.4), a key index section (fig. 2, 2.3.3), and a sub key index section (fig. 2, 2.3.4);

Wherein for a key of the key index list:

The sub key index section comprises ranges of values of the key (2.3.3, 2.3.4) and identification information on ones of the fragments of the metadata corresponding to the values of the key (see table in 2.3.4, e.g., "target_handle", 2.2.2, 2.2.4);

The key index section comprises representative key values representing the respective ranges of values of the key (2.3.3). Also see above discussion of similar claimed subject matter.

Evain does not expressly teach (A) discussed above, repeated here.

However, the complete discussion of paragraphs (A1-A5) is repeated here.

Claim 72 is drawn to substantially the same subject matter as claim 67, addressed above.

As to claims 73, 75, 77, 79, 81, and 83, Evain further teaches wherein the location information to which the predetermined code is assigned corresponds to a path from a root node in the metadata to a metadata fragment containing the key (see Sec. 2.3.1.1).

As to claims 74, 76, 78, 80, 82, and 84, Evain further teaches wherein the location information is an XPath expression (e.g., see sec. 2.3.1.1).

10. Claims 85-90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Evain (XP002323574) provided by Applicant, in view of Wan (US 2004/0028049), further in view of Hubbard ("Programming with C++").

As to claim 85, Evain teaches the claimed subject matter including:

Limitation (i) as discussed above;

As to "transmitted from provider to receiver", see sec. 2.1.5, 2.3.1.1, 2.3.2, and note that the data has to be transmitted from a provider to a receiver for the system to be functional in a computing environment. See previous Action.

Evain does not expressly teach comprising a fragment type field containing an encoded value assigned to a standard fragment type specifying a location of the fragment, wherein the encoded value is assigned to the standard fragment type according to a convention for specifying standard fragment types and a key descriptor field containing location information specifying a location of a key for the index relative to the location of the fragment indicated by the fragment type field.

The complete discussion of paragraphs (A1-A5) is repeated here to show that it would have been obvious to one of ordinary skill in the art at the time the invention was made to encode values of location information of the fragment and the key.

Evain and Wan as modified in the above paragraph does not expressly teach the fragment type field and key descriptor field, containing the encoded value.

However, Evain teaches a program module containing various fields, including a pointer to a string (see e.g., table in 2.3.2). Hubbard shows a program module comprising a string field (e.g., "ABCDEFG"). The string field could contain the encoded value when combined with Evain/Wan above. Furthermore, Evain could support encoding location information in the index list above because Evain already uses encoding fields to encode another value (sec. 2.3.2, see the fields called "key encoding indicator" and "key encoding").

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Evain/Wan with the above, such that the index list has a "fragment type" and "key descriptor" field containing encoded values of the fragment and key, respectively. Note that the encoded value is assigned to

standard (frequently used) fragment types, as seen in the discussion in A2. The motivation would have been to adapt to the particular requirements of the user in setting up the index of fig. 2. For example, a user may prefer a direct access to the encoded string instead of an indirect access.

As to claim 86, the combination of Evain/Wan/Hubbard above would further teach or suggest wherein the encoded value is assigned to a predefined string prior to creating a container containing the index structure for transmission from the provider to the receiver, because if the encoding of the predefined string is to work properly (see e.g., Wan, fig. 3, and discussion above) the encoding must happen (e.g., Wan, para. 0054) before the container is created and sent to the receiver, or else the receiver would be receiving a non-encoded version of the data, and/or the decoder would not be able to decode the contents of the container. Note, similarly, that Wan encodes the data first, and then transmits the resulting data structure(s) to a receiver (e.g., fig. 3-4, para. 0053).

As to claim 87, the combination of Evain/Wan/Hubbard above would further teach or suggest wherein the predefined string specifying the fragment location is a path from a root node in the metadata to a metadata fragment containing the key (see Evain's XPath 2.3.1.1).

As to claim 88, Evain as applied above further teaches the claimed subject matter (see XPath section above).

As to claim 89, Evain as applied above would have the structure of metadata as defined by the TV Anytime Forum (see e.g., introduction, 2.3.1.1, 2.3.5).

As to claim 90, Evain as applied above further teaches wherein the index is contained in a container, the container having a string repository (see fig. 2). The combination also teaches or suggests encoding the string for efficiency (see above).

Evain, Wan, and Hubbard do not expressly teach wherein the string repository does not contain a string corresponding to the predetermined code value.

However, Evain teaches a program module containing various program components, including a pointer to a string (see e.g., table in 2.3.2). Hubbard shows a program module already comprising a string (e.g., "ABCDEFG"). See above.

Additionally, it has been held that making integral is obvious. *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965).

In this case, the key index list and the string in Evain's string repository are initially "separate" (see table in 2.3.2 and fig. 2).

Furthermore, it has been held that the omission of an element and its function is obvious if the function of the element is not desired. *In re Larson*, 340 F.2d 965, 144 USPQ 347 (CCPA 1965).

In this case, the string in the string repository discussed above could be omitted if it and its function are not desired.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further modify Evain/Wan/Hubbard with the above such that a "one piece construction" of the key index list/string is used. In the combination, the string would be directly recorded in the key index list module similarly to Hubbard's string, which was directly recorded within a program module. Furthermore, it would

have been obvious to one of ordinary skill in the art at the time the invention was made to omit the string in the repository since the string and its function would no longer be required (because the string would already be present in the key index list). Therefore, the string repository would not contain a string corresponding to the predetermined code (see above) as claimed. The motivation would have been to adapt to the particular requirements of the user in setting up the index of fig. 2. For example, a user may prefer a direct access to the string instead of an indirect access.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles E. Lu whose telephone number is (571) 272-8594. The examiner can normally be reached on 8:30 - 5:00; M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Apu Mofiz can be reached at (571) 272-4080. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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